11

encryption to prevent unauthorized access to financial account numbers. This procedure requires that, unless the PC modem is using a cellular telephone to communicate, an interface device be connected to the personal computer, or installed internally, which allows communication between a cellular telephone and the PC via a PCMIA cord connection. Also required are software add-ons to Net browsers, virtual banking, or other interactive financial programs to provide user information and prompts consistent with the cell phone transaction/activity procedures.

The external (add-on) cell phone/PC interface device plugs directly into the PC's telephone jack and has a female receptacle for the phone cord to the wall jack or external modem. It also has a pin connector for a PCMIA cord to connect to the cellular phone. The device's circuitry is functional only when an active cell phone is connected to it via PCMIA cord. Otherwise, it is benign, allowing normal modem communications. When functioning, the device circuitry allows the cell phone to communicate with the computer and modem.

Referring to FIGS. 3A–3F the user decides to execute an on-line transaction via computer, such as purchase from an Internet vendor, pay bills electronically, or interact with a remote secure-access computer. The personal computer is in communication with a second party's computer, the desired transaction or activity has been selected on the PC, and any needed price and destination account/access code is displayed. For example, the computer displays the vendor's account code number or telephone account number to which funds will be transferred and prompts the user to enter the unique function code on his cellular phone, which has been activated and cleared, but not yet connected to the interface device.

The user activates and clears the cell phone. User enters the function code and presses "SEND." If the transaction/activity involves a payment and unless there is a default amount associated with the selected function, the mobile service provider CPU prompts the user cell phone to enter the amount of the transaction and "SEND." The CPU confirms amount and asks "OK?" User presses "SEND" to continue or "CLEAR" to reenter. The mobile service provider CPU determines which linked accounts are pre-authorized for access under this function and displays either a default source account code to be debited (such as the customer's mobile phone account), or prompts for a unique account code representing a specific credit card, debit card, bank, or other financial account. These accounts are linked by pre-authorization agreement to the user's mobile phone account. The menu codes for each account are selected by the user and programmed into the CPU at the time service is established (or later modified). The user enters the desired account code and presses "SEND." The CPU determines if a PIN is required for the transaction and prompts for it. The user enters the PIN and presses "SEND."

The mobile phone service provider CPU next prompts for a destination account code number. This may be a unique vendor code, assigned by agreement with the mobile phone service provider, a unique account code (in the case of an inter-account transfer by a single party), or the mobile phone number of the recipient. This account code or phone number is displayed on the computer screen by the Internet vendor or interactive banking program. The user enters the destination account code on the cell phone and presses "SEND." The mobile phone service provider's CPU then prompts "OK to complete transaction?" User presses "SEND" on the cell phone to complete the actual transaction or "END" to cancel. The CPU confirms completion of the transaction by

12

generating and displaying displays a transaction confirmation/authorization code number.

The user now connects the cellular phone to the cell phone/PC interface device with a PCMIA cord and presses "SEND" on the cellular phone key pad to transmit the confirmation/authorization code number through the interface device to the computer and via the modem to the receiving party. The user then disconnects the cellular phone from the interface device and presses "END" to clear the phone. The user closes out the PC software program, terminates the Internet or on-line connection, or prepares for another transaction/activity.

Transmitting the transaction confirmation/authorization code number provides the vendor with independently generated real-time confirmation that an authorized transaction has taken place. Neither the actual originating (debited) account/access number, the actual destination (credited) account/access number, nor the user's PIN are sent over the Internet and possibly intercepted.

An unauthorized user with cloned cellular phone would still need to know the unique function codes, the account codes, and the PIN in order to complete a transaction and have the mobile phone service provider CPU generate a confirmation number. A hacker who might gain access to an unattended PC would find no account numbers or PIN record on the hard drive. The cell phone has in effect served as a stand-alone PIN pad and the actual transaction has taken place offline.

What is claimed is:

1. A method of transferring funds between different accounts comprising the steps of expanding the function of a service provider's central processing unit to include account and authorization information identifying the user by sending the user identification information on the subchannel of a cellular phone or other wireless communication device, entering a function code on the keypad of the cellular phone or other wireless communication device, sending the function code to the central processing unit of the provider which identifies the desired transaction, determining at the central processing unit whether a personal identification number is needed, and supplying the central processing unit with the personal identification number if needed, authorizing the desired transaction, determining the different accounts involved in the transaction, and confirming completion of the transaction.

2. A method of transferring funds between different accounts as in claim 1 wherein the desired transaction involves a default amount at a pre-set price.

3. A method of transferring funds between different accounts as in claim 1 wherein the desired transaction involves a variable amount, identifying the variable amount, and sending it to the central processing unit.

4. A method of verifying identity and authorizing access to a secured location comprising the steps of expanding the function of a service provider's central processing unit to include secure independent verification of a user's identity by sending the user identification information on the subchannel of a cellular phone or other wireless communication device, entering a function code on the keypad of the cellular phone or other wireless communication device, sending the function code to the central processing unit of the provider which identifies the desired transaction as access to the secured location, determining at the central processing unit whether a personal identification number is needed, and supplying the central processing unit with the personal identification number if needed, authorizing the desired transaction, and confirming completion of the transaction.

5. A method of verifying identity and authorizing access to a secured location as in claim 4 wherein the step of authorizing the desired transaction includes communication with the secured location, and activation of the secured location to grant or deny access thereto.

6. A method of transferring funds between different accounts comprising the steps of expanding the function of a service provider's central processing unit to include account and authorization information receiving at the site of a transaction user identification information on the subchannel of a cellular phone or other wireless telecommunication device, transmitting [a function code of a cellular phone or other wireless communication device] the user identification information to the central processing unit of the provider which identifies the desired transaction, determining at the central processing unit whether a personal identification number is needed, and supplying the central processing unit with the personal identification number if needed, authorizing the desired transaction, determining the different accounts involved in the transaction, and confirming completion of the transaction.

7. A method of transferring funds between different accounts as in claim 6 wherein the desired transaction involves a default amount at a pre-set price.

8. A method of transferring funds between different accounts as in claim 6 wherein the desired transaction involves a variable amount, identifying the variable amount, and sending it to the central processing unit.

9. A method of using a wireless device to transfer funds between different accounts comprising:
responding to initiation of communication of the wireless device allowing it to engage in funds transfer,
responding to identification of the user by receiving wireless device identification information transmitted by the wireless device,
entering a function code which identifies the desired funds transfer on the keypad of the wireless device,
sending the function code to a central processing unit,
authorizing the desired funds transfer,
determining the different accounts involved in the funds transfer, and
confirming completion of the funds transfer.

10. The method claim 9 wherein the funds transfer involves a default amount at a pre-set price.

11 The method of claim 9 wherein the funds transfer involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

12. The method of claim 9 wherein the determining step includes determining a source account identification from the user identification.

13. The method of claim 9 wherein the determining step includes determining a destination account from the function code.

14. The method of claim 9 wherein the determining step includes identifying an account using a keypad of the wireless device.

15. The method of claim 14 wherein the account identified using the keypad is a source account.

16. The method of claim 14 wherein the account identified using the keypad is a destination account.

17. A method for realizing a payment transaction allowing a user, operating a wireless device, to pay a vendor for goods or services, the method comprising:
responding to initiation of communication of a wireless device allowing it to engage in the payment transaction,
responding to identification of the user by receiving wireless device identification information transmitted by the wireless device,
receiving, at the wireless device, an instruction relating to the payment transaction,
sending payment transaction instruction information a central processing unit to identify the payment transaction,
authorizing, using the central processing unit,
the payment transaction, and
confirming completion of the transaction.

18. The method claim 17 wherein the payment involves a default amount at a pre-set price.

19. The method of claim 17 wherein the payment involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

20. The method of claim 17 which further includes the step of determining the different accounts involved in the payment.

21. The method of claim 20 wherein the determining step includes determining a source account identification from the user identification.

22. The method of claim 21 wherein the determining step includes determining a destination account from the function code.

23. The method of claim 21 wherein the determining step includes identifying an account using a keypad of the wireless device.

24. The method of claim 23 wherein the account identified using the keypad is a source account.

25. The method of claim 23 wherein the account identified using the keypad is a destination account.

26. A method realizing a payment transaction allowing a user, operating a wireless device, to pay a highway toll, the method comprising:
responding to initiation of communication of a wireless device allowing it to engage in the toll payment transaction,
responding to identification of the user by receiving wireless device identification information transmitted by the wireless device,
receiving, at the wireless device, an instruction relating to the highway toll payment transaction,
sending highway toll payment instruction information to a central processing unit to identify the highway toll payment transaction,
authorizing, using the central processing unit,
the highway toll payment transaction, and
confirming completion of the highway toll payment transaction.

27. The method claim 26 wherein the highway toll payment involves a default amount at a pre-set price.

28. The method of claim 26 wherein the highway toll payment involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

29. The method of claim 26 which further includes the step of determining the different accounts involved in the payment

30. The method of claim 29 wherein the determining step includes determining a source account identification from the user identification.

31. The method of claim 29 wherein the determining step includes determining a destination account from the function code.

32. The method of claim 31 wherein the determining step includes identifying an account using a keypad of the wireless device.

33. The method of claim 32 wherein the account identified using the keypad is a source account.

34. The method of claim 32 wherein the account identified using the keypad is a destination account.

35. A method realizing a payment transaction allowing a user, operating a wireless device, to pay a public transit fare, the method comprising:
responding to initiation of communication of a wireless device allowing it to engage in the transit fare payment transaction,
responding to identification of the user by receiving wireless device identification information transmitted by the wireless device,
receiving, at the wireless device, an instruction relating to the transit fare payment transaction,
sending transit fare payment instruction information to a central processing unit to identify the transit fare payment transaction,
authorizing, using the central processing unit, the transit fare payment transaction, and
confirming completion of the transit fare payment transaction.

36. The method claim 35 wherein the transit fare payment involves a default amount at a pre-set price.

37. The method of claim 35 wherein the transit fare payment involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

38. The method of claim 35 which further includes the step of determining the different accounts involved in the transit fare payment.

39. The method of claim 38 wherein the determining step includes determining a source account identification from the user identification.

40. The method of claim 38 wherein the determining step includes determining a destination account from the function code.

41. The method of claim 38 wherein the determining step includes identifying an account using a keypad of the wireless device.

42. The method of claim 41 wherein the account identified using the keypad is a source account.

43. The method of claim 41 wherein the account identified using the keypad is a destination account.

44. A method realizing a payment transaction allowing a user, operating a wireless device, to pay a parking garage fee, the method comprising:
responding to initiation of communication or a wireless device allowing it to engage in the parking garage fee payment transaction,
responding to identification of the user by receiving wireless device identification information transmitted by the wireless device,
receiving, at the wireless device an instruction identifying the parking garage fee payment transaction,
sending parking garage fee payment instruction information to a central processing unit to identify the parking garage fee payment transaction,
authorizing, using the central processing unit, the parking garage fee transaction, and
confirming completion of the parking garage fee transaction.

45. The method claim 44 wherein the parking garage fee payment transaction involves a default amount at a pre-set price.

46. The method of claim 44 wherein the parking garage fee payment transaction involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

47. The method of claim 44 which further includes the step of determining the different accounts involved in the parking garage fee payment transaction.

48. The method of claim 47 wherein the determining step includes determining a source account identification from the user identification.

49. The method of claim 47 wherein the determining step includes determining a destination account from the function code.

50. The method of claim 47 wherein the determining step includes identifying an account using a keypad of the wireless device.

51. The method of claim 50 wherein the account identified using the keypad is a source account.

52. The method of claim 50 wherein the account identified using the keypad is a destination account.

53. A method realizing an account inquiry transaction allowing a user, operating a wireless device, to obtain account balance information, the method comprising:
responding to initiation of communication or a wireless device allowing it to engage in account balance inquiry transaction,
responding to identification of the user by receiving wireless device identification information transmitted by the wireless device,

receiving, at the wireless device, an account inquiry instruction identifying the account inquiry transaction,
sending account inquiry instruction information to a central processing unit to identify the account inquiry transaction,
authorizing, using the central processing unit,
the account inquiry transaction, and
completing the account inquiry transaction.

54. A method allowing a user of a wireless device to transfer funds between different accounts comprising the steps of:
responding to initiation of communication of the wireless device to allow it engage in the funds transfer,
responding to identification of the user by receipt of wireless device identification information,
receiving from the wireless device identification of a function corresponding to funds transfer,
operating on the funds transfer function at a central processing unit,
determining the different accounts involved in the funds transfer, and
authorizing the desired funds transfer.

55. The method claim 54 wherein the funds transfer involves a default amount at a pre-set price.

56. The method of claim 54 wherein the funds transfer involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

57. The method of claim 54 wherein the determining step includes determining a source account identification from the user identification.

58. The method of claim 54 wherein the determining step includes determining a destination account from the function code.

59. The method of claim 54 wherein the determining step includes identifying an account using a keypad of the wireless device.

60. The method of claim 59 wherein the account identified using the keypad is a source account.

61. The method of claim 59 wherein the account identified using the keypad is a destination account.

62. A method allowing realization of a payment transaction by a user, operating a wireless device, paying a vendor for goods or services, the method comprising the steps of:
responding to initiation of communication of the wireless device to allow it to engage in the payment transaction,
responding to identification of the user by receipt of wireless device identification information,
receiving, from the wireless device, an instruction relating to the payment transaction,
sending payment transaction instruction information to a central processing unit to identify the payment transaction, and
authorizing, using the central processing unit, the payment transaction.

63. The method claim 62 wherein the payment involves a default amount at a pre-set price.

64. The method of claim 62 wherein the payment involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

65. The method of claim 62 which further includes the step of determining the different accounts involved in the payment.

66. The method of claim 65 wherein the determining step includes determining a source account identification from the user identification.

67. The method of claim 65 wherein the determining step includes determining a destination account from the function code.

68. The method of claim 66 wherein the determining step includes identifying an account using a keypad of the wireless device.

69. The method of claim 68 wherein the account identified using the keypad is a source account.

70. The method of claim 68 wherein the account identified using the keypad is a destination account.

71. A method allowing the realization of a payment transaction allowing a user, operating a wireless device, to pay a highway toll, the method comprising:
responding to initiation of communication of a wireless device to allow it to engage in the toll payment transaction,
responding to identification of the user by receipt of wireless device identification information,
receiving, from the wireless device, an instruction relating to the highway toll payment transaction,
sending highway toll payment instruction information to a central processing unit to identify the highway toll payment transaction, and
authorizing, using the central processing unit, the highway toll payment transaction.

72. The method claim 71 wherein the highway toll payment involves a default amount at a pre-set price.

73. The method of claim 71 wherein the highway toll payment involves a variable amount and which includes the further steps of:
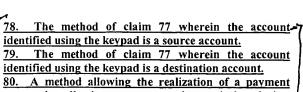using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

74. The method of claim 71 which further includes the step of determining the different accounts involved in the payment

75. The method of claim 74 wherein the determining step includes determining a source account identification from the user identification.

76. The method of claim 74 wherein the determining step includes determining a destination account from the function code.

77. The method of claim 75 wherein the determining step includes identifying an account using a keypad of the wireless device.

78. The method of claim 77 wherein the account identified using the keypad is a source account.

79. The method of claim 77 wherein the account identified using the keypad is a destination account.

80. A method allowing the realization of a payment transaction allowing a user, operating a wireless device, to pay a public transit fare, the method comprising:
responding to initiation of communication of a wireless device to allow it engage in the transit fare payment transaction,
responding to identification of the user by receipt of wireless device identification information,
receiving, from the wireless device, an instruction relating to the transit fare payment transaction,
sending transit fare payment instruction information to a central processing unit to identify the transit fare payment transaction, and
authorizing, using the central processing unit, the transit fare payment transaction.

81. The method claim 80 wherein the transit fare payment involves a default amount at a pre-set price.

82. The method of claim 80 wherein the transit fare payment involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

83. The method of claim 80 which further includes the step of determining the different accounts involved in the transit fare payment.

84. The method of claim 83 wherein the determining step includes determining a source account identification from the user identification.

85. The method of claim 83 wherein the determining step includes determining a destination account from the function code.

86. The method of claim 83 wherein the determining step includes identifying an account using a keypad of the wireless device.

87. The method of claim 86 wherein the account identified using the keypad is a source account.

88. The method of claim 86 wherein the account identified using the keypad is a destination account.

89. A method allowing the realization of a payment transaction allowing a user, operating a wireless device, to pay a parking garage fee, the method comprising:
responding to initiation of communication of a wireless device to allow it to engage in the parking garage fee payment transaction,
responding to identification of the user by receipt of wireless device identification information,
receiving, from the wireless device an instruction identifying the parking garage fee payment transaction,
sending parking garage fee payment instruction information to a central processing unit to identify the parking garage fee payment transaction, and
authorizing, using the central processing unit, the parking garage fee transaction.

90. The method claim 89 wherein the parking garage fee payment transaction involves a default amount at a pre-set price.

91. The method of claim 89 wherein the parking garage fee payment transaction involves a variable amount and which includes the further steps of:
using the wireless device to identify the variable amount, and
sending the identified amount to the central processing unit.

92. The method of claim 89 which further includes the step of determining the different accounts involved in the parking garage fee payment transaction.

93. The method of claim 92 wherein the determining step includes determining a source account identification from the user identification.

94. The method of claim 92 wherein the determining step includes determining a destination account from the function code.

95. The method of claim 92 wherein the determining step includes identifying an account using a keypad of the wireless device.

96. The method of claim 95 wherein the account identified using the keypad is a source account.

97. The method of claim 95 wherein the account identified using the keypad is a destination account.

98. A method allowing the realization of an account inquiry transaction allowing a user, operating a wireless device, to obtain account balance information, the method comprising:
responding to initiation of communication of a wireless device to allow it engage in the account inquiry transaction,
responding to identification of the user by receipt of wireless device identification information,
receiving, from the wireless device, an account inquiry instruction identifying the account inquiry transaction,
sending account inquiry instruction information to a central processing unit to identify the account inquiry transaction, and
authorizing, using the central processing unit, the account inquiry transaction.